



'I took a walk in the woods and came out taller than the trees': A Qualitative Exploration into the Perceived Effect of Nature on Wellbeing.

Francine Taylor

ABSTRACT

Quantitative research has established a link between nature and wellbeing, there is however a lack of qualitative research supporting this notion. This study aimed to provide in-depth, qualitative data to explain and understand the complex interaction between nature and wellbeing.

Seven semi-structured interviews, using photo elicitation were conducted to capture the participant's thoughts, perceptions and experiences of the natural world and the effect it has on their wellbeing. Thematic analysis was carried out and four themes were identified; (1) stress relief, (2) nature connectedness, (3) appreciation and respect for nature and (4) attention.

This small study supports the notion that nature has a positive impact on wellbeing. The qualitative data gained from this study concurs with previous quantitative studies. Further qualitative assessment of the impact nature has on wellbeing is suggested. The recommendation that nature based interventions should be explored, as a preventative measure is an area for future research.

KEY WORDS:	NATURE	STRESS RELIEF	NATURE CONNECTEDNESS	APPRECIATION OF BEAUTY	ATTENTION
-------------------	---------------	----------------------	-----------------------------	-------------------------------	------------------

Introduction

Prevalence of Mental Health

Mental health problems constitute the largest single source of world economic burden with an estimated global cost of £1.6 trillion each year, and account for 4.5% of gross domestic product (Mental Health Foundation, 2015) a greater cost to the economy than cardiovascular disease, chronic respiratory disease, cancer and diabetes (Mental Health Foundation, 2015). The economic cost to the UK is £70-£100 billion a year. The cost of mental health does not just relate to economic cost, the Mental Health Foundation (MHF) (2015) reports that 70-million days are lost from work each year due to individuals suffering mental ill health (MHF, 2015). Despite the recognition of the cost effectiveness of preventing mental health problems, there appears to be gaps in the research base on prevention of mental health problems (MHF, 2016). Given the rise in mental health problems, it appears salient that preventative methods be considered as a priority

Mental health statistics show that 1-in-4 adults and 1-in-10 children are likely to suffer from mental health problems in any year (MHF, 2016). The MHF (2015) reported that in 2012 a total of 202 UK GP's reported that 84% of their consultations concerned issues of stress and anxiety and 55% of patients reported mental health issues. In 2000 1-in-4 individuals aged 16-74 were receiving treatment for symptoms of a common mental health problem, this increased to 1-in-3 in 2014. However, there is a significant overall treatment gap in mental healthcare with around 75% of individuals with mental health problems receiving no treatment at all (MHF, 2016) The Mental Health foundation (2016) suggests that the best way to deal with a crisis is to prevent it from happening in the first place (MHF, 2016). However, UK mental health services are overstretched, public spending is focused almost entirely on crisis management, with an insignificant investment on prevention (MHF, 2015).

Psychological Wellbeing

Psychological wellbeing has been defined as “a positive physical, social, and mental state; it is not just the absence of pain, discomfort and incapacity. It is enhanced by conditions that include supportive personal relationships, strong and inclusive communities, good health, financial and personal security, rewarding employment, and a healthy and attractive environment” (Department for Environment, Food & Rural Affairs, 2007). Furthermore, Shah and Marks (2004) suggested that wellbeing is more than just happiness, wellbeing means developing as a person, being fulfilled and contributing to the community. Many definitions of psychological wellbeing involve a combination of concepts, Ryff (1989a) identified aspects that constitute wellbeing; autonomy, environmental mastery, positive relationships with others, purpose in life, realisation and self-acceptance (Ryff, 1989a). Positive psychologist Seligman suggests that the concepts of wellbeing are a set of building blocks for developing a flourishing life (Seligman, 2011).

Significantly, research has established various links between exposure to nature and wellbeing (Institute for European Environmental Policy, 2017). It has been suggested that green exercise is beneficial to general wellbeing (IEEP, 2017). Tryvaunen et al.

(2014) found that nature increased positive emotions and feelings of vitality. Furthermore, exposure to nature and green exercise improved self-reported wellbeing and was a factor in improved mental health in disadvantaged groups (IEEP, 2017). Green exercise for groups with higher health risks is also likely to improve health, which will in turn have a positive effect on wellbeing. The Department for Environment, Food & Rural Affairs (2007) argued that it is the Government's role to enable individuals to have access now and in the future to the social, economic and environmental resources necessary to achieve wellbeing (Defra, 2007).

Nature

Nature and green space is a free resource that most people have access to. Evidence suggests that access to nature is vital for good mental and physical health at all ages (IEEP, 2017). Research in Spain showed that individuals who lived within 300 metres of green space reported better self-perceived health and mental health (Triguero-Mas et al., 2015), Taylor et al (2015) found that doctors prescribed fewer anti-depressants in urban areas with more trees on the street. Furthermore, people reported feeling happier and having less mental distress when living in urban areas with more green space (Lovell et al, 2014). In addition, research has shown that contact with nature in early life fosters positive attitudes for protecting the environment in adulthood (IEEP, 2017).

Despite the continued spread of towns and cities, the UK National Ecosystem Assessment (2011) reported that urban areas make up only 10.6% of land area in the UK, meaning that the UK's landscape is predominantly rural and green. However, the majority of the population (81.5%) reside in urban areas. With more and more people living in urban areas, it could be suggested that modern individuals have increasingly restricted access to nature and green space.

Theory

There are three theories that attempt to explain why nature is beneficial to our wellbeing.

1. Biophilia (Wilson, 1984)

Wilson proposed that humans have an innate tendency to seek connections with nature and other forms of life. Wilson suggested that our ancestors' wellbeing and survival was dependent on connecting with nature. This however, isn't the case in modern society, easy access to the internet and over-use of technology is becoming common practice; it can therefore be suggested that people are becoming disconnected from nature (Selhub and Logan, 2012). However, it has been suggested that due to the recent move into urban living, the attraction, identification and need to connect with nature still remains in our modern psychology (Capaldi et al., 2014). Biophilia is difficult to test, however, there is suggestive evidence from studies that found preferences for nature scenes over built-up environments (Dopko, Zelinski and Nisbet, 2014) and attraction to nature has been evidenced across diverse cultures (Ulrich, 1993).

2. Attention Restoration Theory (Kaplan & Kaplan, 1989)

This theory distinguishes between directed attention, which is used for executive function, involving prolonged focus and effort, and involuntary attention; which is effortless yet demanding. Directed attention is a limited source that is prone to fatigue after prolonged use, mental fatigue can lead to heightened irritability and declined cognitive performance. Involuntary attention requires no effort, is resistant to fatigue and allows directed attention to rest. Kaplan (1995) suggests that natural environments are restorative as they meet the three components for a restorative experience; being away, rich and coherent environment and compatibility (Kaplan, 1995). Olmsted (1865) suggests that natural scenery “employs the mind without fatigue and yet exercises it; tranquilises it and yet enlivens it; and thus through the influence of the mind over the body, gives the effect of refreshing rest and reinvigoration to the whole system” (Olmsted, 1865:22).

3. Stress Reduction (Ulrich et al, 1991)

Ulrich (1991) suggested that exposure to certain, unthreatening, natural environments elicit a variety of stress-reducing physiological responses. It is believed that nature can decrease arousal and perceived stress-levels and promote stress recovery (Ulrich, 1979). Research testing how elements of nature, such as wood or the sound of running water, influence the human stress response. Results showed that contact with nature can lower pulse rates, reduce cortisol and improve immune functioning (Tsunetsugu, Park and Miyzaki, 2010). Furthermore, Ormel and Nelleman (2001) argue that restricted access to green space can increase vulnerability to the impact of stressful life events as they have less opportunities for adaptive nature-based coping strategies.

Nature Connectedness

Nature connectedness refers to an “individual’s experiential sense of oneness with the natural world” (Mayer & Frantz, 2004). Quantitative research has suggested strong links between nature connectedness and wellbeing, research has found that exposure to nature decreases negative behaviours and states and increases positive ones (Mayer et al, 2009). Capaldi et al. (2014) conducted a meta-analysis to examine the relationship between nature connectedness and happiness. They found a small but significant effect size ($r=0.19$), suggesting individuals with a connection to nature tend to experience more positive effect, vitality and life satisfaction. Consistent personality, attitudinal, behavioural and wellbeing differences were also found between individuals who strongly identified with nature and those who did not. Individuals who had a higher nature connectedness tended to be more conscientious, extroverted, agreeable and open (Nisbet et al., 2009).

It has been argued that there is an ever-growing gap in nature exposure between early evolutionary environments and modern life (Capaldi et al., 2014) with increasing amounts of people residing in urban areas rather than rural areas (Capaldi et al., 2015). Further research has found that in financially wealthy and industrial nations, individuals spend less than 10% of each day outdoors. It has also been found that children spend less time outdoors, often opting for large amounts of screen time instead (Rideout et al., 2010). With the increase in technology and increasing use of social media it could be argued that people no longer see or feel

the need to spend time in nature, instead becoming engrossed in a digital world and underestimating the benefits that nature connectedness can have on wellbeing (Nisbet & Zelenski, 2011). Research has shown that individuals who walk in natural environments compared to urban environments experienced less frustration, engagement, arousal and higher meditation (Aspinwall et al., 2013). Furthermore, Zhang et al (2014) found that individuals that live in urban areas with greater green space reported greater life satisfaction and lower mental distress. However, it has been suggested that despite the move into urban living, the attraction, identification and need to connect with nature remains in our modern psychology (Capaldi et al., 2014).

Human activity has harmed the natural world (Frantz et al., 2005). Various reasons have been proposed for why humans have engaged in this destructive behaviour, one of these is the way in which modern individuals conceive their relationship with nature. (Frantz et al., 2005). Research has found that nature connectedness often leads to an increased concern about the negative impact of human behaviour on the environment (Mayer & Frantz, 2004). Although a concern for the environment is ethically and morally desirable, Nobel (2007) found that some individuals experience 'eco-anxiety' resulting from worry and concern for the environment. It can be argued that individuals with high nature connectedness may experience decreased wellbeing as a result of concern over phenomena such as global warming, deforestation and fracking for example, with some individuals seeing harm done to nature, as harm done to themselves (Mayer & Frantz, 2004).

Stress relief

It has been postulated that the demands and pressures of modern life are catalysts for chronic stress among many individuals (Cohen et al., 2001). Psychological theory has suggested that exposure to certain, unthreatening, natural environments elicit a variety of stress-reducing responses, including decreased arousal and perceived stress levels as well as promoting stress recovery (Ulrich, 1979).

Research has found that contact with nature has positive effects on blood pressure, heart rate, skin conductance and muscle tension (Roe et al., 2013). Lee et al. (2011) found that individuals who visited a forest experienced greater benefits for stress levels than urban environments, using cortisol and pulse rates as biomarkers for stress. Although this research suggests a link between nature and stress relief, the psychological benefits of nature based stress relief were overlooked, as only biomarkers were used as an indication of stress relief. Anger et al. (2010) found that individuals who live in urban environments benefited from green space within a 3km radius around the home, individuals experienced significantly decreased vulnerability to the effects of stressful life events. It has been suggested that exposure to urban nature is related to a greater capacity to deal with difficult life events (Kuo, 2001). Furthermore, evidence suggests exposure to nature enhances the resources needed to manage the demands and pressures of modern life (Jiang & Sullivan, 2014). It is evident that there is a strong link between nature and stress relief. However, to date, only quantitative measures such as questionnaires and biomarkers of stress have been used to establish the relationship. Overall, there is a lack of qualitative research in this field, and few if any attempts to examine the psychological effects of nature based stress relief.

This small study aims to provide in-depth, qualitative data to explain and understand the complex interaction between nature and wellbeing.

Methodology

Research questions

1. What does nature mean to an individual?
2. What kind of relationships do individuals have with nature?
3. Does nature increase wellbeing?

Design

A Qualitative approach was employed as the chosen research method. Semi-structured interviews with photo elicitation were used to capture the participants' thoughts, perceptions and experiences of the natural world and the effect it has on their wellbeing. One-one interviews allow for in depth discussion surrounding the topic at hand, nature and its psychological benefits, and seek to produce findings that are unique yet hold intrinsic value (O'Leary, 2004). Participants were asked to bring a photo of their favourite natural environment to the interview. This is in keeping with the work of, Mason (2002) who recommends encouraging participants with recounting or narrating situations and events, grounding the dialogue in relevant contexts. Seven semi-structured interviews were carried out using male and female participants. Thematic analysis was used to analyse the data in accordance with the guidelines set by Braun and Clarke (2006).

The research was underpinned epistemologically by a constructivist approach. This approach seeks to theorise the socio-cultural contexts and structural conditions that enabled the accounts that were given (Braun and Clarke, 2006). Constructivism refers to the process by which reality is constructed through an individual's active experience of it (Raskin and Bridges, 2003). The idea of a relationship with nature is constructed directly from an individual's experience with the natural world, thus providing rationale for the decision to conduct the research from a constructivist perspective.

Participants

Seven participants, aged between 19 and 55, from a range of different geographical locations were recruited to take part in interviews that sought to explore the perceived relationship between nature and wellbeing.

A volunteer sampling method was employed to recruit participants. Participants responded to advertisements that were placed around the university and on social networking sites e.g. Facebook and Twitter. In addition, personal contacts from the researcher's social circle were used. The use of personal contacts meant that a level of rapport was already established prior to the interviews, it has been suggested that when interviewees are comfortable, they relate richer stories and elaborated

explanations (Ryan and Dundon, 2008) There were five female participants and two male participants, six of the participants were students aged 19-55.

Potential participants were sent an invitation email and asked to reply if they were willing to participate. Once participants indicated interest, they received an information sheet detailing what would be expected of them during the study, participants also received a consent form which further outlined the research aims and ethical rights of a participant (Appendix 3, & 4)

Data Collection Method

Seven semi-structured interviews were conducted, which allowed participants to speak freely about their feelings and experiences of the natural world and the benefits they have experienced from it. This was the most appropriate way of collecting the in-depth data required for this research. An interview schedule containing open-ended questions was prepared prior to the interviews and was used as an aid throughout (Appendix 6). An interview schedule was used to ensure all key topics were covered during the sessions, probes were used to prompt more information if necessary. All 7 interviews were carried out on MMU campus, in a private room in the Brooks building to ensure privacy and that participants felt comfortable and relaxed. The interviews lasted between 20–50 minutes including the brief (Appendix 2 & 3) and the de-brief (Appendix 5). As detailed previously, participants were asked to bring a photo of their favourite natural environment, this was used to promote discussion as the concepts surrounding the topic were quite abstract. All interviews were recorded using a Dictaphone which participants were made aware of during the brief. Participants used a pseudonym in the interview transcript ensuring anonymity; any other identifiable information was removed and altered.

Data Analysis Method

Thematic analysis, a method used to identify and analyse patterns in qualitative data (Braun and Clarke, 2013) was chosen as the analytical approach for this study. Thematic analysis allows for rich, detailed analysis with the freedom to explore various sections of the data in detail (Braun and Clarke, 2006). Furthermore, this analysis is compatible with constructivist paradigms within psychology (Braun and Clarke, 2006).

Prior to analysis, interviews were transcribed which facilitated familiarity with the data, following this repeated reading of the transcripts was conducted to allow for immersion in the data (Braun and Clarke 2006). Data was then coded (Tuckett, 2005) and overarching themes were developed (Braun and Clarke, 2006). An inductive approach was taken during analysis, meaning that the themes identified were closely linked to the data (Patton, 1990) and did not fit a pre-existing coding frame. The level at which the themes were identified was latent, meaning analysis sought to go beyond the semantic content of the data and explored the underlying ideology, assumptions and conceptualisations (Braun and Clarke, 2006). The final stage was to refine and define the themes, by identifying the essence of each and

determining which aspect of the data each theme captured (Braun and Clarke, 2006).

Ethical Considerations

Ethical approval was obtained via the dissertation supervisor (Appendix 1). The code of Ethics and Conduct (2009) created by the British Psychological Society was followed throughout the research to ensure the safety of the participants and researcher. Participants received an invitation email, information sheet, consent form and were debriefed (Appendix 2, 3, 4, 5), meaning participants were fully aware of the research content and how to withdraw if required. Prior to giving consent, participants were made aware that the interview was being recorded and that the data collected would be anonymised. Anonymity was maintained throughout via the use of pseudonyms, any other identifiable information was altered and removed from the transcript.

All information collected was stored securely following the Data Protection Act (1998) and was destroyed once analysis was complete. Interview recordings were stored on a password protected file on the university H-drive and were deleted once transcription was complete.

All participants were over the age of 18 and were able to give their own informed consent. Interviews took place in a hired room on MMU campus and a 'check-in' procedure was followed to ensure the safety of participants and researcher, as well as providing a private and comfortable space. Following the interviews participants were thanked, debriefed and directed to counselling and other appropriate services if appropriate.

Analysis and Discussion

This study sought to gain insight into the effect of nature on wellbeing by allowing participants the opportunity to discuss their feelings, perceptions and experiences of nature and the effect this has on their wellbeing. Following thematic analysis, 4 main themes were identified: (1) Stress relief, (2) nature connectedness, (3) appreciation and respect for nature and (4) attention paid to nature.

Theme 1: Stress Relief

Stress is the process by which an individual responds psychologically, physiologically, and often with behaviours, to a situation that challenges or threatens wellbeing (Baum et al., 1985), therefore stress reduction refers to strategies which counteract this response. Stress relief as a direct outcome of exposure to nature was a key area of discussion throughout all 7 interviews.

Jayne L30-32 *"...you slow everything down and you take sort of deep breaths and just like look at everything around you and get distracted by it rather than thinking about what's stressed you..."*

Jasmine L44-45 *"...definitely when I'm stressed or angry, it just seems to induce a sense of peacefulness and calm over me..."*

Ulrich (1979) suggested that exposure to certain, unthreatening, natural environments can elicit a variety of stress-reducing responses. It is believed that nature can decrease arousal, promoting stress recovery (Ulrich, 1979). Across all the interviews, participants discussed how exposure to nature, both rural or an urban park environment helped relieve the stresses they were under in their everyday life. In addition, some participants discussed being aware of nature's restorative properties and thus actively seeking natural environments to spend time in when the stressors of everyday life became too much.

Adam L40-43 *"...when I'm stressed or sad ... like when there is too much going on in my brain and it is spinning me out a bit, like when my thoughts are overwhelming I find it calming to just get out and surround myself with nature, it seems to have a calming effect on me..."*

It has been suggested that the demands and pressures of modern life are to blame for the increase in individuals suffering with chronic stress (Cohen et al., 2001). However, evidence suggests that exposure to nature enhances the resources necessary to manage the demands and pressures of modern life (Jiang et al., 2014), further evidence suggests that exposure to urban nature is related to a greater capacity to deal with difficult life problems (Kuo, 2001). Some participants discussed feeling the need to escape from their urban living environment to a natural environment when faced with stress.

Ellie L33 *"...when I'm stressed, or if I've been inside too much and you get a bit stir-crazy, I just need to go out and find something natural..."*

Jayne L14-15 *"...it's something I do when I wanna just take a bit of space and just kinda shrug my shoulders and let it all go..."*

Omel and Neeleman (2000) argued that restricted access to green space may increase people's vulnerability to the impact of stressful life events due to there being fewer opportunities for nature-based coping strategies. The participants discussed actively seeking natural environments to spend time in during stressful periods, suggesting they are aware of the beneficial effects of nature on wellbeing.

Theme 2: Nature Connectedness

Nature connectedness is an "individual's experiential sense of oneness with the natural world" (Mayer and Frantz, 2004:504). Throughout the interviews participants discussed feeling a connection or sense of union with nature.

Jasmine L45-47 *"...I really like the way it makes me feel connected to something, I'm not sure what I'm connected to but it just makes me feel like I'm part of something bigger..."*

Wilson (1984) argued that individuals have a biological need to affiliate with and feel connected to the broader natural world, when this need to belong is met through exposure to nature, individuals will experience psychological benefits (Mayer et al, 2009). The participants discussed feeling connected or in a state of union with nature, in accordance with previous literature, it could be suggested that the participants feeling of connection with the natural world results in increased psychological well-being.

It has been suggested that key elements of meaning in life; self-transcendence, stable patterns and permanency, life fitting within a larger scheme, feeling alive and connection can be found within the natural world (Howell et al., 2012). Furthermore, it has been found that high meaning in life correlates positively with a variety of indicators of well-being (Steger and Frazier, 2005).

Jasmine L37-38 *“...It just makes me feel calm and connected to something that is much bigger and powerful than I am and it’s absolutely beautiful...”*

Adam L67-71 *“...when you go to a place like the Lake District and you can see that there are ... entities and things within this sort of world that are so much more significant and powerful and greater than you are and yet you are still part of it so you feel empowered by it but it’s kind of overwhelming but in a kind of comforting way...”*

Throughout the interviews several participants discussed feeling part of something bigger, it could be argued that this feeling fits with two key elements of meaning in life; Self-transcendence and life fitting within a larger scheme (Howell et al, 2012). It could be suggested that participants who discussed experiences of *“Feeling connected to something that is much bigger and powerful than I am”* may have high meaning in life, something which has been associated with increased well-being (Steger and Frazier, 2005). In addition, Seligman (2011) proposed five pathways toward well-being: positive emotions, engagement, meaning, relationships and accomplishment. It has been argued that nature connectedness is closely related with engagement and meaning, it can therefore be suggested that high nature connectedness may lead to a higher meaning in life which in turn has a positive effect on well-being.

Philosopher Erich Fromm (1976) argues that the human desire to experience union with others is one of the most powerful motivators of human behaviour. Fromm (1976) suggests that ‘in order not to feel utterly isolated, which would in fact condemn us to insanity, we need to find a new unity: with our fellow beings and with nature’ (Fromm, 1976:83).

Adam L52 – 57 *“...so it’s like erm I can see everything all of the life and all of the animal behaviour and the plants and everything kind of existing and going on around me and I sort of enter a state of union with it and erm but at the same time I sort of have no sense of self...”*

Throughout the interviews, participants discussed feeling the need to re-establish their connection with nature and the sense of connectedness they feel once immersed in nature. In a society that appears to revolve around material consumption, forming a connection with and enjoying something that can never be truly ours may lead to an increase in wellbeing. This is in keeping with Fromm’s (1976) suggestion that in order to move forward, society should adapt a new attitude towards nature, one that encourages harmony rather than conquest (Fromm, 1976:133).

Theme 3: Appreciation and respect for nature

Appreciation has been defined as “acknowledging the value and meaning of something – an event, a person, a behaviour, an object – and feeling a positive

emotional connection to it" (Adler, 2002:81). Respect refers to a feeling of deep admiration for someone or something' (Taylor, 1981). Throughout the interviews participants spoke highly of the natural world, often referring to its beauty and magnificence.

Meg L43-46 *"...I think it's realising how incredible nature is, looking at the pretty views and realising this is here, around us all, and sometimes we don't notice it. I think my favourite aspects is breathing in the fresh air and I enjoy sitting and taking a look around and appreciating what I see..."*

Taylor (1981) suggests that when looking at ourselves from an evolutionary point of view it is easy to see that humans are recent arrivals on earth, however, our emergence as a species on the planet was originally an event of no particular importance to the entire scheme of things (Taylor, 1981). Throughout the interviews participants recognised the fact that nature has existed as long as the world has, leading to an appreciation and respect for the natural world. Taylor (1981) suggests that once the idea that humans are superior in worth to other living things is forgotten, we are ready to adopt the attitude of respect for nature (Taylor, 1981).

Grant 38-39 *"...it is just fascinating I suppose, 'cause it's like been there for like forever so like nature has always been around..."*

Jasmine L34-36 *"...I guess I have a massive amount of respect for nature, 'cause if you think about it it's been on earth so much longer than humans have and without nature we wouldn't be able to survive..."*

Throughout the interviews, participants often spoke about being in awe of nature's beauty. Appreciation of beauty and excellence (ABE) was proposed as a strength of character which belongs to the virtue of transcendence (Peterson and Seligman, 2004). ABE refers to the ability to perceive and appreciate beauty, virtue and talent in physical and social worlds, involving experiences such as awe, elevation and admiration (Haidt and Keltner, 2004). There is a long-standing philosophical argument that appreciation of beauty correlates positively with increased wellbeing. Philosophy regards appreciation of beauty and excellence as a positive experience (Martinez-Marti et al, 2015), Schopenhauer suggested that the aesthetic contemplation is a very particular process which is akin to a state of truce in which will and suffering will disappear (Stanford Encyclopaedia of Philosophy, 2012). Furthermore, Kant (1987) stated that "a direct interest in the beauty of nature is always a mark of a good soul" (Kant, 1987:165). Research has shown that ABE correlates positively with life satisfaction (Diessner et al., 2008).

Adam L91 *"...it is a breathtakingly beautiful place..."*

Jasmine L37-39 *"...It just makes me feel calm and connected to something that is much bigger and powerful than I am and it's absolutely beautiful, certain places just take my breath away..."*

When discussing personal experiences of the natural world, the participants often referred to nature's beauty as 'breath-taking'. Research has shown that individuals with high ABE are often high in self-transcendence and have increased levels of well-being (Martinez-Marti et al, 2015). Maslow (1970) suggested that aesthetic needs exist and may be met through beautiful surroundings, Maslow (1970) regarded beauty as a B-Value, a value that may guide an individual's growth toward

wholeness (Maslow, 1970). Furthermore, in Maslow's (1970) hierarchy of needs transcendence is the last motivational stage of human development, suggesting that appreciation of natural beauty can act as a catalyst to push individuals toward wholeness. Martinez-Marti et al. (2015) argue that although self-transcendence is not an explicit predictor of wellbeing, it involves aspects which can be used to predict wellbeing; flow, spirituality, peak experience and feeling in connection with the world around us (Martinez-Marti et al, 2015).

Jayne L35-37 *"...there's always something lovely even if it's a really damp nasty day, there's always something amazing to see..."*

The participant's expression of appreciation for nature's beauty could indicate their possession of the signature character strength; appreciation of beauty and excellence. Linley (2008) suggests that signature character strengths enable individuals to reach optimal functioning, however this is only if individuals are aware of their signature strengths. Furthermore, research has found that experiences of appreciation enhance positive mood and feelings of connection (Adler, 2005). It could therefore be suggested that participant's appreciation for beauty of the natural world, may lead to an increase in wellbeing.

Theme 4: Attention

Attention has been defined as the selection of some information at the expense of other information (Pashler, 1998). Throughout the interviews, participants spoke about paying a lot or all their attention to nature when in a natural environment.

everything else that's going on in my life so I like to become really engrossed with where I am..."

Attention restoration theory (Kaplan & Kaplan, 1989) distinguishes between directed attention, which is susceptible to fatigue, and involuntary attention, which requires no effort. Directed attention is a limited source that is vulnerable to fatigue, resulting in heightened irritability and declined cognitive performance. In contrast, involuntary attention is believed to be resistant to fatigue and allows directed attention to rest (Kaplan, 1995). Kaplan (1995) suggests that natural environments are 'restorative', there are four components to the restorative experience; fascination, being away, rich and coherent environment which constitutes a whole new world and compatibility between the environment and one's purposes (Kaplan, 1995). American landscape architect Olmsted (1865) once said that natural environments 'employ the mind without fatigue and yet exercises it; tranquilises it and yet enlivens it; through the influence of the mind over the body, gives the effect of refreshing rest and reinvigoration of the whole system' (Olmsted, 1865:22).

Jayne L25 *"...when I do it, it is relaxing and renewing..."*

Adam L115-118 *"...actually no quite a lot because whatever I've gone into nature to achieve kind of initially involves me engaging with the natural environment and that's how it kind of brings me to a state of productivity ... so yeah typically quite a lot..."*

When discussing how much attention the participants paid to nature, the four components for a restorative experience; being away, compatibility, a new world and fascination, were all referred to across the interviews. It could be suggested that by spending time in nature, participants are allowing their directed attention to rest and thus reducing the likelihood of heightened irritability caused by mental fatigue.

Kaplan (2001), draws comparisons between attention restoration and mindfulness or mediation. Kaplan (2001) argues that many people meditate for the same reasons that lead individuals to pursue restorative experiences, they seek tranquil respite and an opportunity to allow the mind to rest and regain its capacity to focus (Kaplan, 2001). Kaplan (2001) suggests that the two main mandates of meditation; avoid calling on tired cognitive patterns and avoiding unnecessary effort are closely related to the 'being away' and 'fascination' requirement of the restorative experience (Kaplan, 2001). Mindfulness refers to "being attentive to and aware of what is taking place in the present" (Brown & Ryan, 2003:822)

Ellie L72 *"...A lot, because you are kind of away from other distractions..."*

Meg L75 *"...I'd say I pay a lot of attention to nature..."*

Throughout the interviews, participants spoke about paying attention to nature and enjoying the feeling of being engrossed in the natural world. The way in which the participants pay attention to nature could be associated with mindfulness. Research has shown that mindfulness is important in disengaging individuals from automatic thoughts, habits and unhealthy behaviour patterns, therefore enhancing well-being (Ryan & Deci, 2000). Further research has shown that mindful individuals are more 'in tune' with their emotions, less self-conscious, less socially anxious and ruminate less resulting in increased wellbeing (Brown & Ryan, 2003).

Discussion

This study identified 4 distinct themes. The themes; nature connectedness, stress relief, appreciation and respect for nature and attention, reflected the meaningful components of the participant's experiences of nature and the effect it has on their wellbeing. The findings of this study are congruent with the current knowledge base surrounding the topic. All seven participants recognised and appreciated the benefits of nature's coping and restorative properties and claimed they actively sought natural environments to spend time in, during stressful periods. Connectedness to nature was strongly felt by all participants, this has previously been associated with increased wellbeing (Mayer and Frantz, 2004).

Although not explicitly linked with wellbeing, appreciation of nature's beauty was a reoccurring theme throughout the interviews, its connections with Peter and Seligmans (2004) strengths of character, and Maslow's (1970) hierarchy of needs suggest strong links with increased wellbeing. All participants discussed paying attention to nature, Kaplan (2001) suggested similarities between attention restoration and mindful mediation. Many individuals meditate for the same reasons that lead people to pursue restorative natural experiences, they seek tranquil respite and the opportunity to allow the mind to rest and regain its capacity to focus (Kaplan, 2001). It could be suggested that being in nature is a form of mediation, by allowing people to become aware and attentive of the present moment.

Strengths and Limitations

There are several strengths and limitations associated with the research. The research fulfilled its main aim to provide in-depth, qualitative data to explain and understand the effect of nature on wellbeing. In addition, the research results can be added to a prominently quantitative area of study to further the understanding of the effects of nature on a small cohort of individuals. However, there are limitations to this study in relation to the sample used. Firstly, the sample showed a gender biased sample, with a 5:2 female:male ratio, this may have been a result of the volunteer sampling method used to recruit participants. Secondly, due to the pragmatic sampling, all 7 participants shared an affinity with nature, it is arguable that the results may have been different if the cohort consisted of individuals who had no affinity for nature. Thirdly, 6 out of the 7 participants were students between the ages of 19-22, whilst this was unavoidable due to the sampling method employed, it raises issues pertaining to the representativeness and generalisability of the research.

Directions for future research

With mental health issues costing the UK £70-£100 billion a year and a proportion of those costs allocated to medications, a consideration of the therapeutic value of nature and the positive impact it has on wellbeing should be a focus for future research. As nature is accessible to both city and country dwellers, and is a free resource, research should consider the benefit for individuals and the health economics of using nature based interventions as a preventative measure. This small study, despite its limitations, supports that contention.

The findings of this small study further highlight the importance of nature's therapeutic properties. With the fast pace of modern society being associated with the increase in individuals suffering from ill mental health, nature based coping strategies should be prioritised. This qualitative study provides further support for the increasing number of quantitative studies exploring the therapeutic benefits of nature. The recommendation that nature based interventions should be explored, as a preventative measure is a potential area for future research.

Reflexivity

It is essential that the researcher develops a self-aware analysis of their own role. This requires an awareness of interactions between the researcher, the researched and the research. As an inexperienced interviewer, it became clear that I needed to encourage participants to elaborate and expand on their answers. After developing the interview schedule and conducting 3 interviews it was apparent that the question *'How would you describe your relationship with nature'* was challenging for the participants. Early recognition and reflection on this, meant that it was something I was able to modify and subtly alter, as I continued to conduct the interviews. I was required to research and learn the skills necessary to carry out thematic analysis accurately. This was a relatively newly acquired skill for me prior to this study. The volume of data was initially challenging, but I gathered confidence in my ability, as the analysis continued.

All of the participants were known to me, which meant a good level of rapport was already established, this may have led to participants feeling that it was easy to vocalise their responses. However, it is also important to consider that the participants may have altered their responses accordingly, to give me the information they thought I wanted to hear.

Even though attempts were made to recruit an unbiased sample, few participants responded to the adverts around the university and on social networking sites. This led to me recruiting participants from my social circle, thus influencing the type of participants who took part in the study. I became increasingly aware of the sample bias, which may have influenced the data obtained, and the study's external validity. All 7 participants shared a known affiliation with nature; it would have been ideal to have recruited a mixed or random sample for the study.

As a lover of nature myself, I was aware that my own personal experiences and feelings may have been reflected in the research. Although it was difficult to keep a neutral stance in the interpretation of participant's responses, I feel I remained aware of my potential for biased questioning, understanding and interpretation. I took into consideration that the way in which the participants experience a connection with nature was likely to be very different from my own.

After personally experiencing the therapeutic value of nature, I conducted the study expecting and hoping to find a positive relationship between nature and wellbeing. My expectations were met. However, the specific finding that 'appreciation of nature's beauty' may increase wellbeing was unexpected and of particular interest. The findings from this theme provide a base for exploration into the link between appreciation of nature's beauty and wellbeing in future studies.

References:

- Adler, M. G., and Fagley, N. S. (2005). 'Appreciation: Individual Differences in Finding Value and Meaning as a Unique Predictor of Subjective Well-being'. *Journal of Personality*, 73 (1), 79-114
- Anges, E., Berg, V. D., Maas, J., Verjheij, R. A., and Groenewegen, P. P. (2010) 'Green space as a buffer between stressful life events and health'. *Social Science and Medicine*. Vol 70(8), pp 1203-1210
- Aspinwall, L. S., Mavros, P., Coyne, R., and Roe, J (2013). 'The Urban Brain: Analysing outdoor physical activity with mobile EEG'. *British Journal of Sports Medicine*, 1-6
- Baum A., Schaeffer, M. A., Lake, C. R., Fleming, F., and Collins, D. L. (1985). 'Psychological and endocrinological correlates of chronic stress at Three Mile Island'. *Perspectives on behavioural medicine*. 2, 201-217
- Braun, V. and Clarke, V. (2006). *Using thematic analysis in psychology Qualitative Research in Psychology*. 3 (20). Pp. 77-101
- Braun, V. and Clarke, V. (2013) *Teaching thematic analysis: Over-coming challenges and developing strategies for effective learning*. *The Psychologist*, 26 (2). Pp. 120-123
- Brown, K. W., and Ryan, R. M. (2003). 'The Benefits of Being Present: Mindfulness and Its Role in Psychological Well-Being'. *Journal of Personality and Social Psychology*. 84(4), 822-848
- Capaldi, C., Passmore, H., Nisbet, E., Zeneski J., Dopko, R. (2015) 'Flourishing in Nature: A review of the benefits of connecting with nature and its applications as a wellbeing intervention.' *International Journal of Wellbeing*, 5(4), 1-16.
- Capaldi, C., Dopko, R., and Zelenski, J. M. (2014) 'The Relationship between nature connectedness and happiness: A meta-analysis'. [online] first online published 8th September 2014. [Accessed on 1st October 2016] DOI: 10.3389/fpsyg.2014.00976
- Cohen, S., Miller, G. E., and Rabin, B. S. (2001). 'Psychological stress and antibody response to immunization: A critical review of the human literature'. *Psychosomatic Medicine*. 7-18
- Department for Environment, Food and Rural Affairs (2007) '*Departmental Report*'. [Online] [Accessed on 15th March 2017] URL: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/243280/7103.pdf
- Diessner, R., Solom, R. C., Frost, N. K., Parsons, L., & Davidson, J. (2008). 'Engagement with beauty: Appreciating natural, artistic, and moral beauty'. *Journal of Psychology: Interdisciplinary and Applied*, 142(3), 303-329.
- Dopko, R. L., Zelenski, J. M., & Nisbet, E. K. (2014). 'Nature salience increases judgments of environmental satisfaction'. *Ecopsychology*, 6, 207-217.

Frantz, C., Mayer, S. F., Norton, C., and Rockman, M. (2005). 'There is no "I" in nature: The influence of self-awareness on connectedness to nature. *The Journal of Environmental Psychology*. Vol 25, pp 427-436

Fromm, E. (1976) 'To Have or To Be'. Continuum

Gander, F., Proyer, R. T., Ruch, W., and Wyss, T. (2012). 'Strength-Based Positive Interventions: Further Evidence for Their Potential in Enhancing Well-Being and Alleviating Depression'. *Journal of Happiness Studies*, 1-19

Galindo, M. P., Rodregues, J. A. C. (2000). 'Environmental Aesthetics and Psychological Wellbeing: Relationships Between Preference Judgements for Urban Landscapes and Other Relevant Affective Responses'. *Psychology in Spain*. 4(1), 13-27

Haidt, J., & Keltner, D. (2004). Appreciation of beauty and excellence [awe, wonder, elevation]. In C. Peterson, & M. E. P. Seligman (Eds.), *Character strengths and virtues: A handbook and classification* (pp. 537-551). Washington, New York: American Psychological Association and Oxford University Press.

Hatten, K., Forin, R. T., Adams, R. (2013). *A picture elicits a thousand meanings: Photo elicitation as a method for investigating cross-disciplinary identity development*.

Harper, D. (2002) 'Talking about pictures: A case for photo elicitation'. *Visual Studies*. Vol. 17. pp 13-23

Howell, A. J., Passmore, H. A., and Buro, K. (2012). 'Meaning in Nature: Meaning in Life as a Mediator of the Relationship Between Nature Connectedness and Well-Being'. *Journal of Happiness Studies*. Vol 13(6)

Institute for European Environmental Policy (2017). 'Nature for Health and Equity'. [Online] [Accessed on 27th March 2017] URL: http://www.foeeurope.org/sites/default/files/biodiversity/2017/briefing_nature_health_equity_march2017.pdf

Jiang, B., Chang, C-Y., and Sullivan, W. C. (2014). 'A dose of nature: Tree cover, stress reduction, and gender differences'. *Landscape and Urban Planning*. Vol 132, pp 26-36

Kant, I. (1987). *Critique of judgment*. Indianapolis: Hackett. (Original work published 1790)

Kaplan, S. (1995) 'The Restorative Benefits of Nature: Toward An Integrative Framework'. *Journal of Environmental Psychology*. 15, 169-182

Kaplan, S. (2001). 'Meditation, Restoration, and the Management of Mental Fatigue'. *Environment and Behaviour*. 33 (4), 480-506

Kaplan, R., & Kaplan, S. (1989) *The experience of Nature: A Psychological perspective*. Cambridge UK: Cambridge University Press.

Kuo, F. (2001) 'Coping with Poverty: Impacts of Environment and Attention in the Inner City'. *Environment and Behaviour*, 33 (1), 5-34

Lee, J., Park, B.J., Tsunetsugu, Y., Ohira, T., Kagawa, T., and Miyazaki, Y. (2011). 'Effect of forest bathing on physiological and psychological responses in young Japanese male subjects'. *Public Health*, 125, 93–100.

Leopold, A. (1949). *'A Sand County Almanac: With essays on conservation from Round River'* Ballantine Books: New York.

Linley, A. (2008). *'Average to A+: Realising strengths in yourself and others'*. Coventry, UK: CAAP Press.

Lovell, R., Wheeler, B. W., Higgins, S. & Depledge, M. H. (2014). 'A systematic review of the health and well-being benefits of biodiverse environments'. *Journal of Toxicology & Environmental Health Part B: Critical Reviews*, 17(1), 1-20

Maibach, E., Roser-Renouf, C., Leiserowitz, A. & Hmielowski, J. (2012) *Global Warming's Six Americas, March 2012 & Nov. 2011*. Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change Communication. [Online] First published online March 2012. [Accessed 03/11/16] URL: <http://environment.yale.edu/climate-communication-OFF/files/Six-Americas-March-2012.pdf>

Mason, J. (2002). *Qualitative interviewing: Asking, listening and interpreting*, in: May, T. (Ed.), *Qualitative Research in Action*. London: Sage: 225-241.

Maslow, A. (1970). *Motivation and personality* (3rd ed.). New York: Harper & Row.

Martinez-Marti, M., Hernandez-Llordeda, M., and Avia, M. (2015). 'Appreciation of Beauty and Excellence: Relationship with Personality, Prosociality and Well-Being'. *Journal of Happiness Studies*. Pp 1-49

Mayer, S. F., and Frantz, C. M (2004). 'The connectedness to nature scale: A measure of individuals' feeling in community with nature'. *Journal of Environmental Psychology*. 24(4), 503-515

Mayer, S. F., Frantz, C. M., Bruehlman-Senecal, E., and Dolliver, K. (2009). 'Why is Nature Beneficial? The Role of Connectedness to Nature'. *Environment and Behaviour*. Vol 41(5), pp 607-643

Mental Health Foundation (2015) 'Fundamental Facts About Mental Health'. *Mental Health Foundation*. 1-94 [online] [Accessed 27th March 2016] URL: <https://www.mentalhealth.org.uk/sites/default/files/fundamental-facts-15.pdf>

Mental Health Foundation (2016) 'Fundamental Facts About Mental Health'. *Mental Health Foundation*. 1-94 [online] [Accessed 27th March 2016] URL: <https://www.mentalhealth.org.uk/sites/default/files/fundamental-facts-about-mental-health-2016.pdf>

Nisbet, E. K., & Zelenski, J. M. (2011). *Underestimating nearby nature: Affective forecasting errors obscure the happy path to sustainability*. *Psychological Science*, 22. [Online] First published online 9th August 2011 [Accesses 25th October 2016] DOI: 10.1177/0956797611418527

Nisbet, E. K., Zelinski, J. M., and Murphy, S. A. (2009). 'Nature relatedness scale: Liking individuals' connection with nature to environmental concern and behaviour'. *Environmental Behaviour*, 41, 715-740

- Nobel, J. (2007). 'Eco-anxiety: Something else to worry about' [online] [Accessed 25th march 2017]. URL: <http://www.philly.com>
- O'Leary, Z. (2004) '*The Essential Guide To Doing Research*'. Sage Publications. 102-111
- Olmsted, F. L (1865) 'Yosemite and the Mariposa Grove: A preliminary Report' *Yosemite Association*, 22
- Ormel J., and Neeleman, J. (2001). 'Towards a dynamic stress-vulnerability model of depression: The role of neuroticism, life events and gender'. In T. Harris (Ed.), *Where inner and outer worlds meet. Psychological research in the tradition of George W. Brown*, 151-171
- Pashler, H. E. (1998). *The psychology of attention*. Cambridge, MA: The MIT Press
- Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage
<https://kaiserfamilyfoundation.files.wordpress.com/2013/04/8010.pdf>
- Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. Washington, New York: American Psychological Association, Oxford University Press.
- Rideout, V. J., Foehr, U. G., & Roberts, D. F. (2010). *Generation M²: Media in the lives of 8- to 18-year olds*. [Online] [Accessed on 30th October 2016] URL: <http://files.eric.ed.gov/fulltext/ED527859.pdf>
- Raskin, J. D. (2002). 'Constructivism in psychology: Personal construct psychology, radical constructivism and social constructionism'. In: Raskin, J. D., and Bridges, S. Kaskin, J. D., and Bridges, S. K (2003) 'Studies in meaning: Exploring constructivist psychology'. *Pace University Press*, 1-25
- Roe, J. J., Thompson, C. W., Aspinall, P. A., Brewer, M. J., Duff, E. I., Miller, D., Mitchell, R., and Clow, A. (2013). 'Green space and stress: Evidence from cortisol measures in deprived urban communities'. *International Journal of Environmental Research and Public Health*. Vol 10, pp 4086-4103
- Ryan, R. M., and Deci, E. L. (2000). 'Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Wellbeing'. *American Psychologist*, 55, 68-78
- Ryan, P., and Dundon, T. (2008). 'Case Research Interviews: Eliciting Superior Quality Data'. *International Journal of Case Method Research & Application*. 4, 1-8
- Ryff, C. D. (1989a). 'Happiness is everything, or is it? Explorations on the meaning of psychological wellbeing'. *Journal of Personality and Social Psychology*, 57, 1069–1081. <http://dx.doi.org/10.1037/0022-3514.57.6.1069>
- Selhub, E., and Logan, A. (2012). *Your Brain on Nature, The Science of Nature's Influence on Your Health, Happiness and Vitality*. Ontario: John Wiley and Sons.
- Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and wellbeing*. New York, NY, US: Free Press.

- Shah, H., & Marks, N. (2004). *A well-being manifesto for a flourishing society*. London: The New Economics Foundation
- Smith, J. A. and Osborn, M. (2008). Interceptive Phenomenological Analysis. In: Smith, J. A. (ed.) *Qualitative Psychology: A Practical Guide to Research Methods*. 2nd ed., London: Sage Publications
- Stanford Encyclopaedia of Philosophy (2012). *Schopenhauer's Aesthetics*. [Online] [Accessed 23rd March 2017] URL: <https://plato.stanford.edu/entries/schopenhauer-aesthetics/>
- Streger, M. F., and Frazier, P. (2005). 'Meaning in Life: One Link in the Chain from Religiousness to Well-Being'. *Journal of Counselling Psychology*. 52(4), 574-582
- Taylor, P. W (1981) 'The Ethics of Respect for Nature'. *Environmental Ethics*, 3(3), 197-218
- Taylor, M. S., Wheeler, B. W., White, M. P., Osbourne, N. J., and Theodoros, E. (2015) 'Urban street tree density and antidepressant prescription rates – A cross-sectional study in London, UK.' *Landscape and Urban Planning*, 136, 174–179.
- The British Psychological Society (2009). *Code of Ethics and Conduct*. Leicester: Ethics Committee of the British Psychological Society. [Online][Accessed on 15th October 2016] URL: http://www.bps.org.uk/sites/default/files/documents/code_of_ethics_and_conduct.pdf
- Triguero-Mas, M., DAdvand, P., Cirach, M., Martinez, D., Medina, A., Mompert, A., Basagna, X., Grauleviciene, R., and Nieuwenhuijsen, M. J.. (2015) 'Natural outdoor environments and mental and physical health: Relationships and mechanisms'. *Environmental International*, 22, 35–41
- Tsunetsugu, Y., Park, B. J., & Miyazaki, Y. (2010). *Trends in research related to "Shinrin-yoku" (taking in the forest atmosphere or forest bathing) in Japan*. *Environmental Health and Preventive Medicine*. 15, 27-37
- Tuckett, A. G. (2005). *Applying thematic analysis theory to practice: A researcher's experience*. pp. 75-87. [online] First published online 17th December 2014 [Accessed 23rd October 2026] URL: <http://www.tandfonline.com/doi/abs/10.5172/conu.19.1-2.75>
- Tryvaunen, L., Ojala, A., Korpela, K., Kanki, T., Tsunetsugu, Y., and Kagawa, T. (2014) 'The Influence of Urban Green Environments on Stress Relief Measure: A Field Experiment'. *Journal of Environmental Psychology*, 38, 1-9
- UK National Ecosystem Assessment (2011). 'The UK National Ecosystem Assessment: Synthesis of the Key Findings'. UNEP-WCMC, Cambridge.
- Ulrich, R. S. (1979) 'Visual Landscapes and Psychological Well-being'. *Journal of Landscape Research*, 4 (1), 17-23
- Ulrich, R. S., Simons, R. F., Losito, B. D., Florito, E., Miles, M. A., and Zelson, M. (1991). 'Stress Recovery During Exposure to Natural and Urban Environments'. *Journal of Environmental Psychology*, 11, 201-230
- Ulrich, R. S. (1993). *Biophilia, biophobia and natural landscapes*. In Kellert, R. S., Wilson, O. E. (Eds), *The Biophilia Hypothesis*. Pp 73-137

Willing, C. (2013) 'Introducing Qualitative Research in Psychology'. *Open University Press*. 38-79

Wilson, E. O. (1984) '*Biophilia*'. Cambridge, MA. Harvard University Press

Zhang, J. W., Howell, R. T., and Iyer, R. (2014). 'Engagement With Natural Beauty Moderates the Positive Relation Between Connectedness with Nature and Psychological Well-being'. *Journal of Environmental Psychology*, 38, 55-63